

**Common Mode Choke Cores**  
For signal lines, DC and AC power lines and Output filters

**FINEMET<sup>®</sup>** is the product of Materials Mag!c  
The best solution for energy saving, electromagnetic noise reduction and size reduction.



● **Features**

- 1) Satisfy both high saturation magnetic flux density and high permeability
- 2) Low core loss
- 3) Low magnetostriction
- 4) Excellent temperature characteristics and small aging effects
- 5) Excellent high frequency characteristics
- 6) Flexibility to control magnetic properties " B-H curve shape " during annealing (Fig.1)

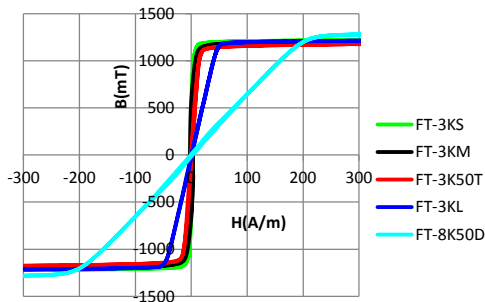
● **Line-up of FINEMET<sup>®</sup> Materials**

*FT-3K50T* and *FT-8K50D* are brand new materials, controlled by applying a magnetic field during annealing.

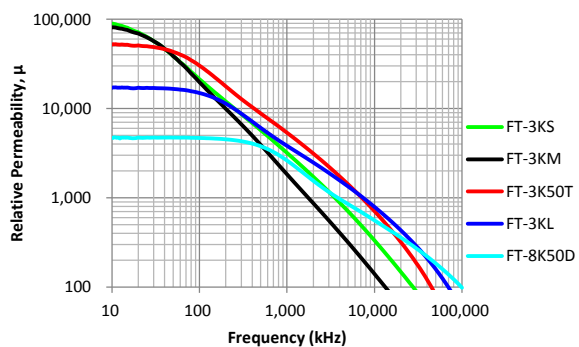
- FT-3K50T having high relative permeability  $\mu_r$  over than 100 kHz range compared to standard material, FT-3KM. (Fig.2)
- FT-8K50D having excellent saturation characteristics compared to FT-3KL. (Fig.3)

Material code	Bs (T)	Br/Bs (%)	Hc (A/m)	$\mu_r$ (10kHz) ( $\times 10^3$ )	$\mu_r$ (100kHz) ( $\times 10^3$ )	$\lambda_s$ ( $\times 10^{-6}$ )	Tc (deg.C)
FT-3KS	1.23	40	1.5	100	20	< 1	~ 570
FT-3KM		50	2.5	70	15		
FT-3K50T		10	1.2	50	31		
FT-3KL		5	0.6	27	17		
FT-8K50D	1.32	0.7	1.4	5	5	< 8	~ 550

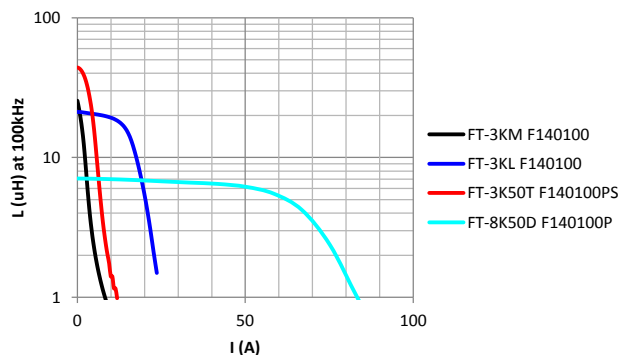
DC B-H (Fig.1)



Permeability vs. Frequency (Fig.2)



Inductance vs. DC bias current (Fig.3)  
(1 turn)

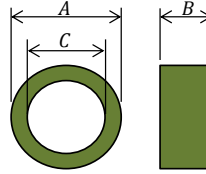


**Common Mode Choke Cores**

For signal lines, DC and AC power lines and Output filters

● **FT-3KM F Series**

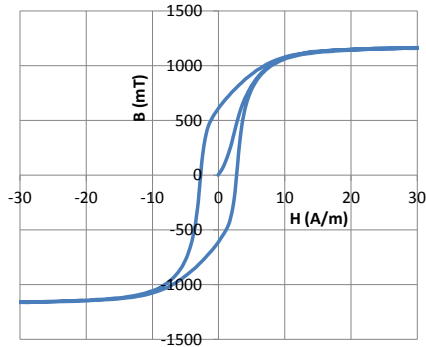
FT-3KM F series made of FT-3 M type material, having high permeability in wide frequency range, for common mode current for DC and AC power lines.



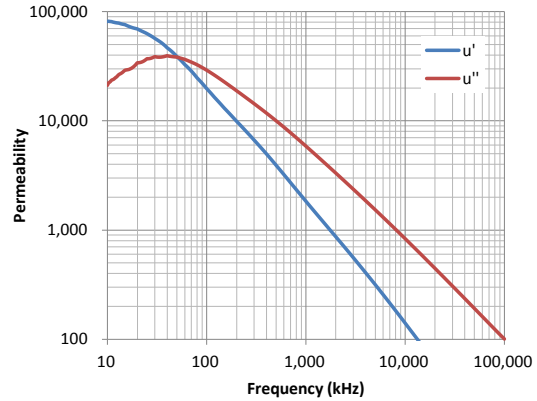
Product code	P/N	Finished dimension (mm)			Ae	Lm	Weight (g)	AL value (μH/N <sup>2</sup> )	
		A Max.	B Max.	C Min.	(mm <sup>2</sup> )	(mm)		10kHz	100kHz +/-30%
					TYP.	TYP.	TYP.		
F1AH0047	FT-3KM F2515D	28.5	17.5	12.3	46.9	62.8	25	42~100	16.9
F1AH1139	FT-3KM F3020C	33.1	13.0	17.4	38.2	78.9	28	29.8~55.4	11
F1AH0048	FT-3KM F3320E	36.3	18.2	16.8	73.1	83.3	49	49.7~120	19.9
F1AH0049	FT-3KM F3724E	40.5	18.3	20.6	73.1	95.8	59	43~100	17.3
F1AH1140	FT-3KM F4032E	42.3	17.8	29.1	40.8	111.6	40	22.5~41.8	8.3
F1AH0050	FT-3KM F4424G	47.1	23.4	21.0	142.5	106.8	123	75.4~180	30.2
F1AH0896	FT-3KM F4535G	49.5	25.7	30.5	75.0	125.7	89	34~80	13.5
F1AH0897	FT-3KM F4627H	50.7	29.2	22.9	178.1	114.7	168	89.2~210	35.1
F1AH1141	FT-3KM F5040G	52.3	22.8	37.1	72.8	141.8	80	31.6~58.7	11.6
F1AH0898	FT-3KM F6045G	64.7	26.0	40.3	112.5	164.9	162	39~90	15.4
F1AH0899	FT-3KM F7555G	79.7	25.7	50.3	150.0	204.2	267	42~100	16.6
F1AH0900	FT-3KM F10080G	104.7	25.7	75.3	138.8	285.1	336	30~65	12
F1AH0901	FT-3KM F140100	145.0	36.0	95.3	427.5	380.1	1,335	63~150	24.8
F1AH0024	FT-3KM F200160	205.0	36.0	155.0	427.5	568.6	1,875	42~100	15.1+50% -30%

- Plastic material: UL94 V-0 certified resin (130°C:PBT, 155°C:PET of heat resistance) is used for these core cases.
- No Ozone Layer Depleting Chemicals are used in these products or their manufacturing process.
- Ae: effective cross-section area, Lm: mean magnetic path length

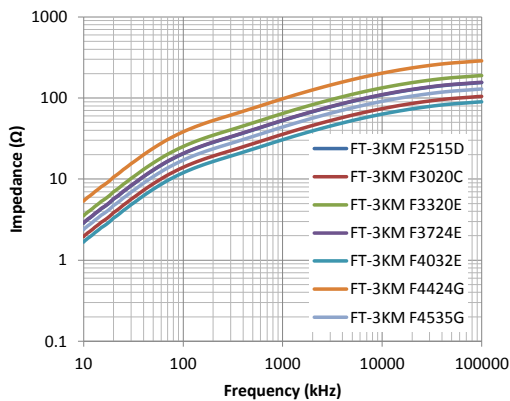
DC B-H



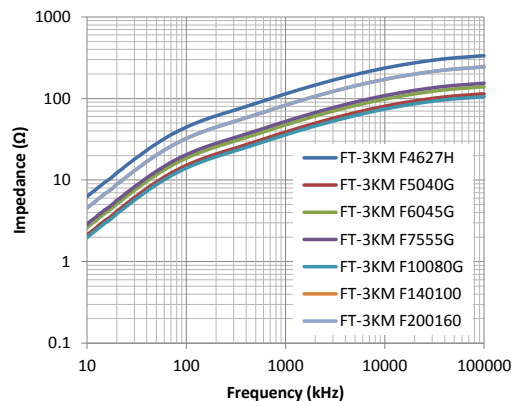
Permeability vs. Frequency



Impedance vs. Frequency



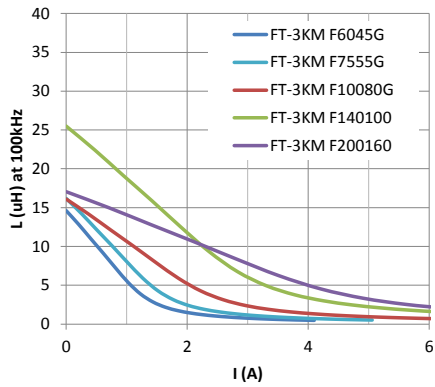
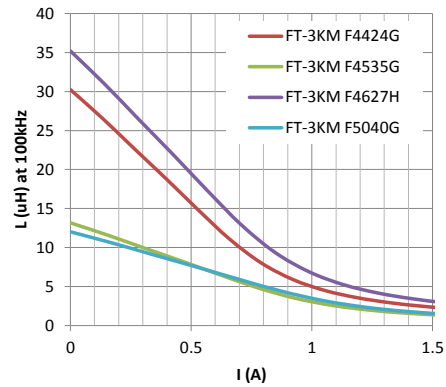
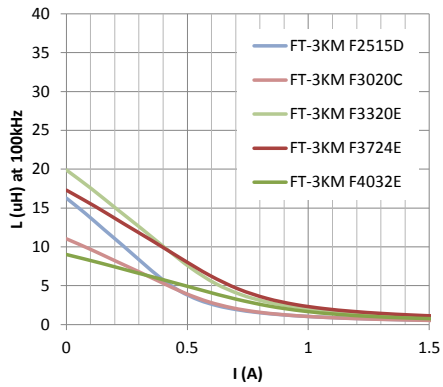
Impedance vs. Frequency



## Common Mode Choke Cores

For signal lines, DC and AC power lines and Output filters

### Inductance vs. DC bias current



(Note)

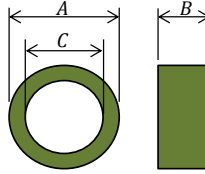
L vs. DC bias current is typical value, not guaranteed.

**Common Mode Choke Cores**

For signal lines, DC and AC power lines and Output filters

● **FT-3K50T F Series**

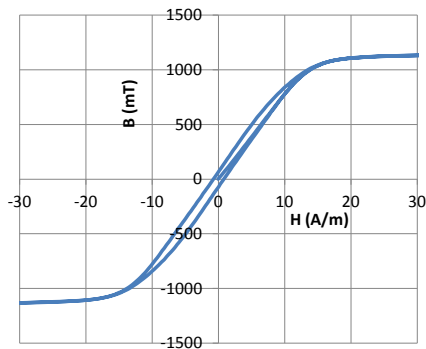
FT-3K50T F series made of FT-3 50T type material, having high permeability and high saturation current, are suitable for common mode current for DC and AC power lines.



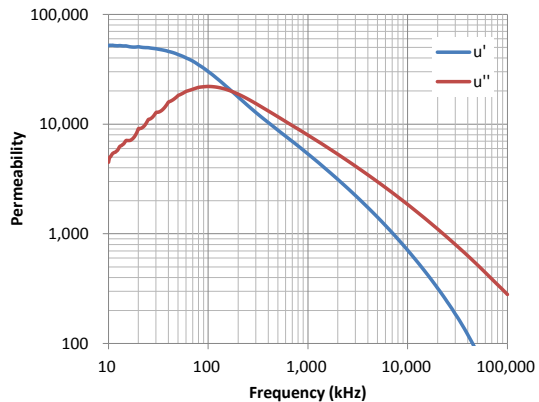
Product code	P/N	Finished dimension (mm)			Ae	Lm	Weight	AL value (μH/N <sup>2</sup> )	
		A	B	C	(mm <sup>2</sup> )	(mm)	(g)	10kHz	100kHz
		Max.	Max.	Min.	TYP.	TYP.	TYP.		+/-30%
F1AS3247	FT-3K50T F1613YS	17.8	8.0	10.7	45.2	7.9	4	7.7~14.3	6.4
F1AS3278	FT-3K50T F2117DS	23.3	15.3	13.9	18.9	59.6	11	14.7~27.3	12.0
F1AS2807	FT-3K50T F2515DS	28.5	17.5	12.3	44.3	63.3	25	30.7~65.9	27.2
F1AS3090	FT-3K50T F3020CS	33.1	13.0	17.4	37.6	79.3	28	21.6~40.2	17.9
F1AS2801	FT-3K50T F3320ES	36.3	18.2	16.8	71.2	83.3	49	37.6~80.6	33.3
F1AS2894	FT-3K50T F3724ES	40.5	18.3	20.6	71.2	95.8	60	33.9~62.9	28.1
F1AS3241	FT-3K50T F4032ES	42.3	17.8	29.1	43.8	113.0	40	16.1~29.8	14.2
F1AS2808	FT-3K50T F4424GS	47.1	23.4	21.0	138.8	106.8	123	57.1~122.4	50.6
F1AS2679	FT-3K50T F4535GS	49.5	25.7	30.5	73.0	125.7	89	26.5~49.2	22.0
F1AS2895	FT-3K50T F4627HS	50.7	29.2	22.9	173.4	114.7	164	66.5~142.5	58.9
F1AS3242	FT-3K50T F5040GS	52.3	22.8	37.1	73.0	141.0	80	22.6~41.9	20.0
F1AH1110	FT-3K50T F6045GS	64.7	26.0	40.3	104.4	166.0	162	27.6~59.2	24.5
F1AH1111	FT-3K50T F7555GS	79.7	25.7	50.3	142.3	205.0	267	30.5~65.4	27.1
F1AS2811	FT-3K50T F10080GS	104.7	25.7	75.3	138.8	285.1	336	20.9~44.7	18.5
F1AS3124	FT-3K50T F140100PS	145.0	36.0	95.3	427.5	380.1	1,335	49.5~106	43.8

- Plastic material: UL94 V-0 certified resin (130°C:PBT, 155°C:PET of heat resistance) is used for these core cases.
- No Ozone Layer Depleting Chemicals are used in these products or their manufacturing process.
- Ae: effective cross-section area, Lm: mean magnetic path length

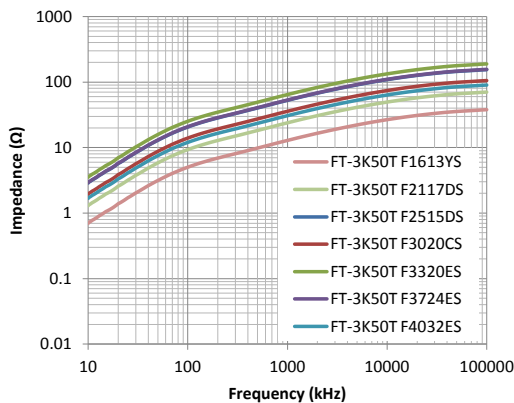
DC B-H



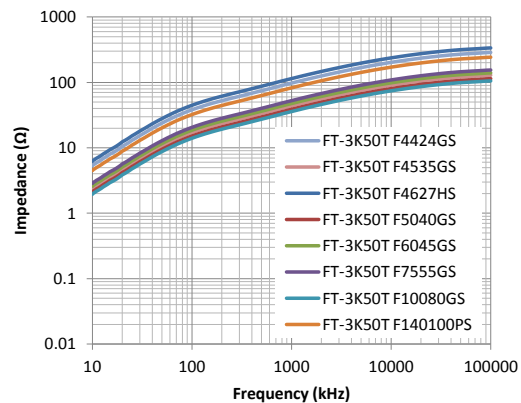
Permeability vs. Frequency



Impedance vs. Frequency



Impedance vs. Frequency

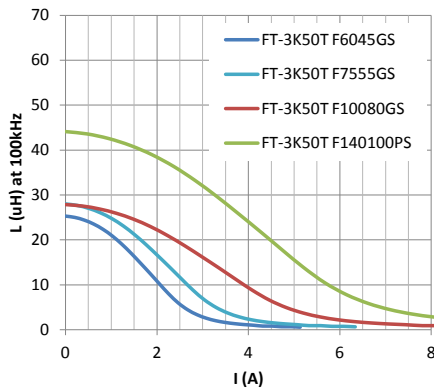
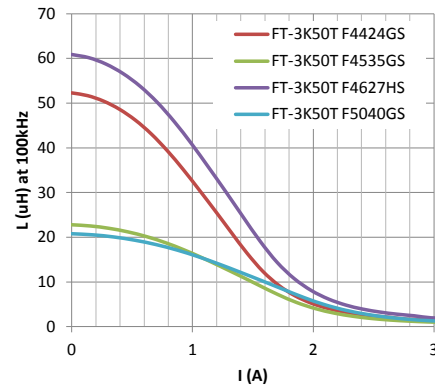
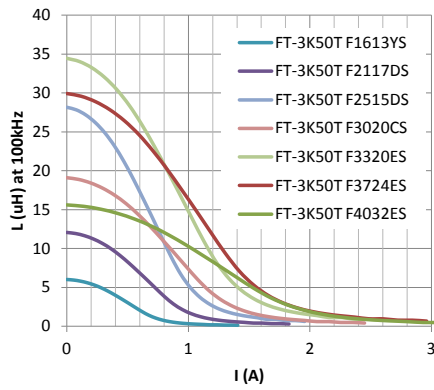


For safety and proper usage, you are requested to approve our product specification or to transact the approval sheet for product specifications before ordering. This catalog and its contents are subject to change without notice.

**Common Mode Choke Cores**

For signal lines, DC and AC power lines and Output filters

Inductance vs. DC bias current



(Note)

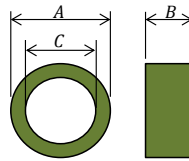
L vs. DC bias current is typical value, not guaranteed.

**Common Mode Choke Cores**

For signal lines, DC and AC power lines and Output filters

● **FT-3KL F Series**

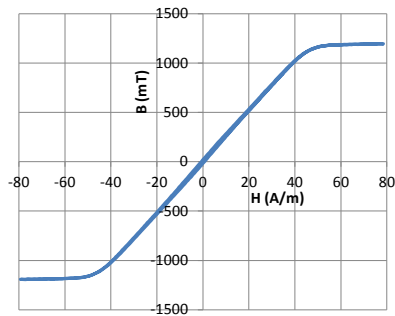
FT-3KL F series made of FT-3 L type material, having high saturation current, are suitable for common mode current from several A to over 10 A for DC and AC power lines.



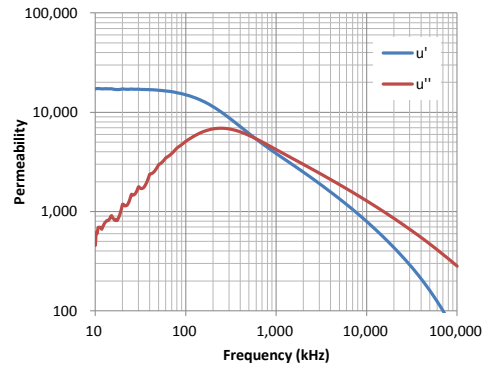
Product code	P/N	Finished dimension (mm)			Ae	Lm	Weight (g)	AL value (μH/N <sup>2</sup> )	
		A Max.	B Max.	C Min.	(mm <sup>2</sup> ) TYP.	(mm) TYP.		10kHz +/-30%	100kHz +/-30%
F1AS3249	FT-3KL F2515D	28.5	17.5	12.3	46.9	62.8	25	20.8	15.3
F1AS3250	FT-3KL F3020C	33.1	13.0	17.4	37.6	79.3	28	14.2	10.5
F1AH0680	FT-3KL F3320E	36.3	18.2	16.8	73.1	83.3	49	25.4	18.8
F1AH0681	FT-3KL F3724E	40.5	18.3	20.6	73.1	95.8	59	22.1	16.3
F1AS3251	FT-3KL F4032E	42.3	17.8	29.1	43.8	113.0	40	12.0	8.9
F1AS3252	FT-3KL F4424G	47.1	23.4	21.0	142.5	106.8	123	38.6	28.5
F1AH0682	FT-3KL F4535G	49.5	25.7	30.5	75.0	125.7	89	17.3	12.8
F1AS2799	FT-3KL F4627H	50.7	29.2	22.9	178.1	114.7	168	44.9	33.2
F1AS3253	FT-3KL F5040G	52.3	22.8	37.1	73.0	141.0	80	14.8	11
F1AH0683	FT-3KL F6045G	64.7	26.0	40.3	112.5	164.9	162	18.7	13.8
F1AH0684	FT-3KL F7555G	79.7	25.7	50.3	150.0	204.2	267	21.0	15.2
F1AH0685	FT-3KL F10080G	104.7	25.7	75.3	138.8	285.1	336	14.1	10.4
F1AH0686	FT-3KL F140100	145.0	36.0	95.3	427.5	380.1	1,335	32.6	24.0
F1AS3254	FT-3KL F200160	205.0	36.0	155.0	427.5	568.6	1,875	21.7	16.1

- Plastic material: UL94 V-0 certified resin (130°C:PBT, 155°C:PET of heat resistance) is used for these core cases.  
 - No Ozone Layer Depleting Chemicals are used in these products or their manufacturing process.  
 - Ae: effective cross-section area, Lm: mean magnetic path length

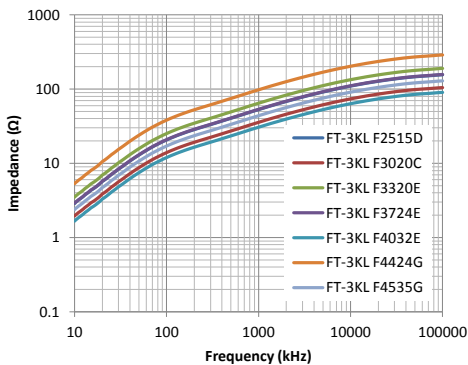
DC B-H



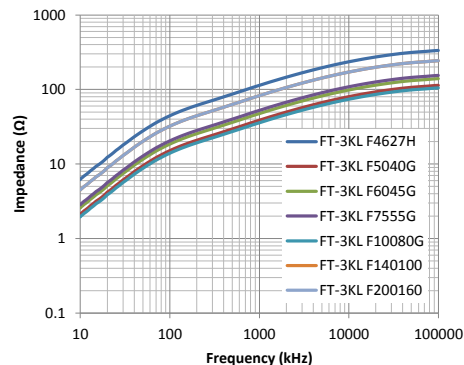
Permeability vs. Frequency



Impedance vs. Frequency



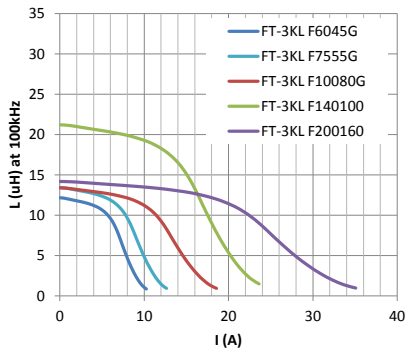
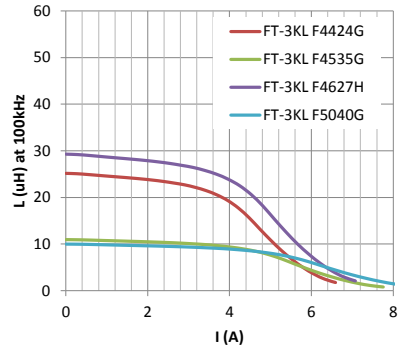
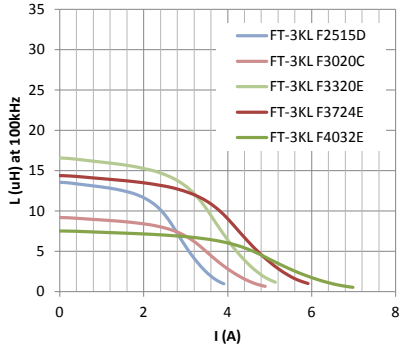
Impedance vs. Frequency



**Common Mode Choke Cores**

For signal lines, DC and AC power lines and Output filters

Inductance vs. DC bias current



(Note)

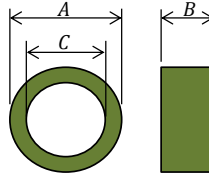
L vs. DC bias current is typical value, not guaranteed.

## Common Mode Choke Cores

For signal lines, DC and AC power lines and Output filters

### ● FT-8K50D F Series

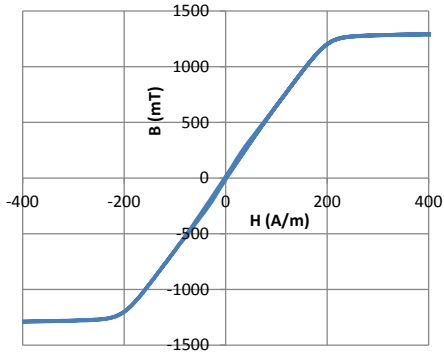
FT-8K50D F series made of FT-8 50D type material, having high saturation current, are suitable for common mode current from several 10 A to over 100 A for DC and AC power lines.



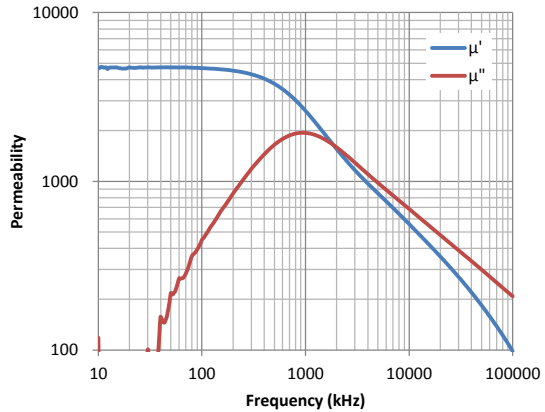
Product code	P/N	Finished dimension (mm)			Ae	Lm	Weight (g)	AL value (μH/N <sup>2</sup> )	
		A	B	C	(mm <sup>2</sup> )	(mm)		10kHz	100kHz
		Max.	Max.	Min.	TYP.	TYP.	TYP.	+/-30%	+/-30%
F1AS2921	FT-8K50D F4535G	49.5	25.7	30.5	75.0	125.7	89	3.7	3.7
F1AS2613	FT-8K50D F6045G	64.7	26.0	40.3	107.3	166.0	157	4.1	4.0
F1AS2830	FT-8K50D F7555G	79.7	25.7	50.3	146.3	205.5	272	4.5	4.4
F1AS2831	FT-8K50D F10080G	104.7	25.7	75.3	139.5	286.2	336	3.1	3
F1AS2914	FT-8K50D F140100P	145.0	36.0	95.3	430.9	382.8	1,350	7.1	7
F1AS3240	FT-8K50D F160130H	166.9	30.5	123.9	292.5	455.5	1,029	4.0	4.0
F1AS2615	FT-8K50D F200160P	205.0	36.0	155.0	427.5	568.6	1,930	4.7	4.7

- Plastic material: UL94 V-0 certified resin (130°C:PBT, 155°C:PET of heat resistance) is used for these core cases.
- No Ozone Layer Depleting Chemicals are used in these products or their manufacturing process.
- Ae: effective cross-section area, Lm: mean magnetic path length

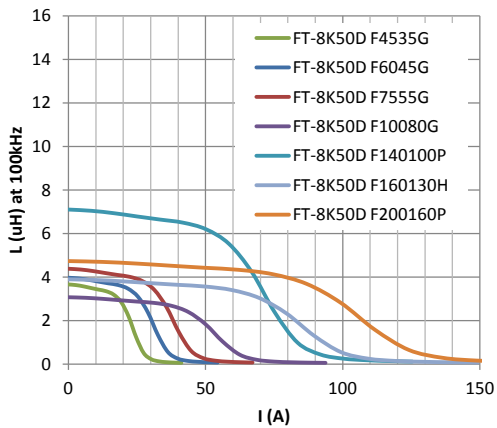
#### DC B-H



#### Permeability vs. Frequency

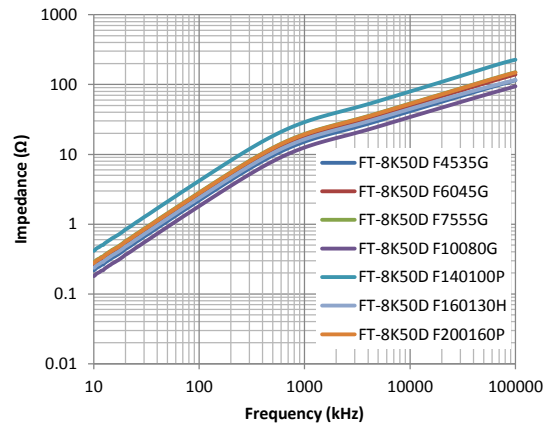


#### Inductance vs. DC bias current



(L vs. DC bias current is typical value, not guaranteed)

#### Impedance vs. Frequency





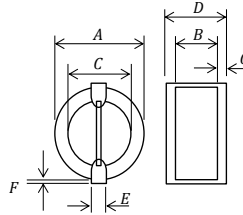
**Common Mode Choke Cores for Single-phase**

For signal lines, DC and AC power lines and Output filters

● **FT-3KM K Series**  
**FT-3K50T K Series**

FT-3KM K series cores made of FT-3 M type material are for common mode chokes for single lines, DC and single-phase AC power lines.

FT-3K50T K series cores made of FT-3 50T type materials are upgrade version of FT-3KM, which has higher inductance and impedance in the range of over than 100kHz frequency.



**FT-3KM K Series**

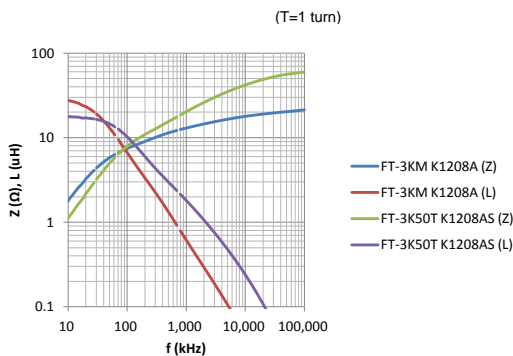
Product code	P/N	Finished dimension (mm)							Ae (mm <sup>2</sup> )	Lm (mm)	Weight (g)	AL value (μH/N <sup>2</sup> )	
		A Max.	B Max.	C Min.	D Max.	E REF.	F REF.	G REF.				10kHz MIN.	100kHz +/-30%
F1AH0538	FT-3KM K1208A	13.7	7.8	5.5	11.4	2.6	-	1.8	7.7	30.3	2.9	18.2	5.8
F1AH0694	FT-3KM K1208C	14.2	13.2	6.3	16.2	3.0	-	1.5	13.3	31.7	4.5	24	8.8
F1AH0654	FT-3KM K1812A	20.9	8.8	9.8	13.8	3.5	-	2.5	11.3	47.1	5.8	14.7	5.3
F1AH0693	FT-3KM K1912C	21.8	14.0	9.5	19.0	3.5	-	2.5	24.4	48.9	13.0	28.2	10.6
F1AH0694	FT-3KM K2313D	25.9	15.8	11.0	21.4	4.0	-	2.8	43.9	57.3	23.0	41.6	15.3
F1AH0695	FT-3KM K2214B	24.9	11.3	11.5	16.9	4.0	-	2.8	22.2	56.5	13.0	22.2	8.1
F1AH0696	FT-3KM K2515D	27.9	16.3	12.5	21.9	3.5	-	2.8	46.3	62.8	26.0	41.6	15.3
F1AH0697	FT-3KM K2818E	31.1	18.7	15.3	24.7	3.5	1.5	3.0	55.5	72.3	37.0	43.4	15.9
F1AH0699	FT-3KM K3819D	41.1	16.2	16.3	24.2	4.0	2.0	4.0	87.9	89.5	68.0	55.5	20.4
F1AH0700	FT-3KM K3824G	41.3	23.7	20.9	31.7	4.0	2.0	4.0	105	97.4	87.0	61	24.4
F1AH0701	FT-3KM K5328E	57.1	19.7	24.1	29.7	5.5	2.0	5.0	127.5	114.7	155.0	62.5	25.0

**FT-3K50T K Series**

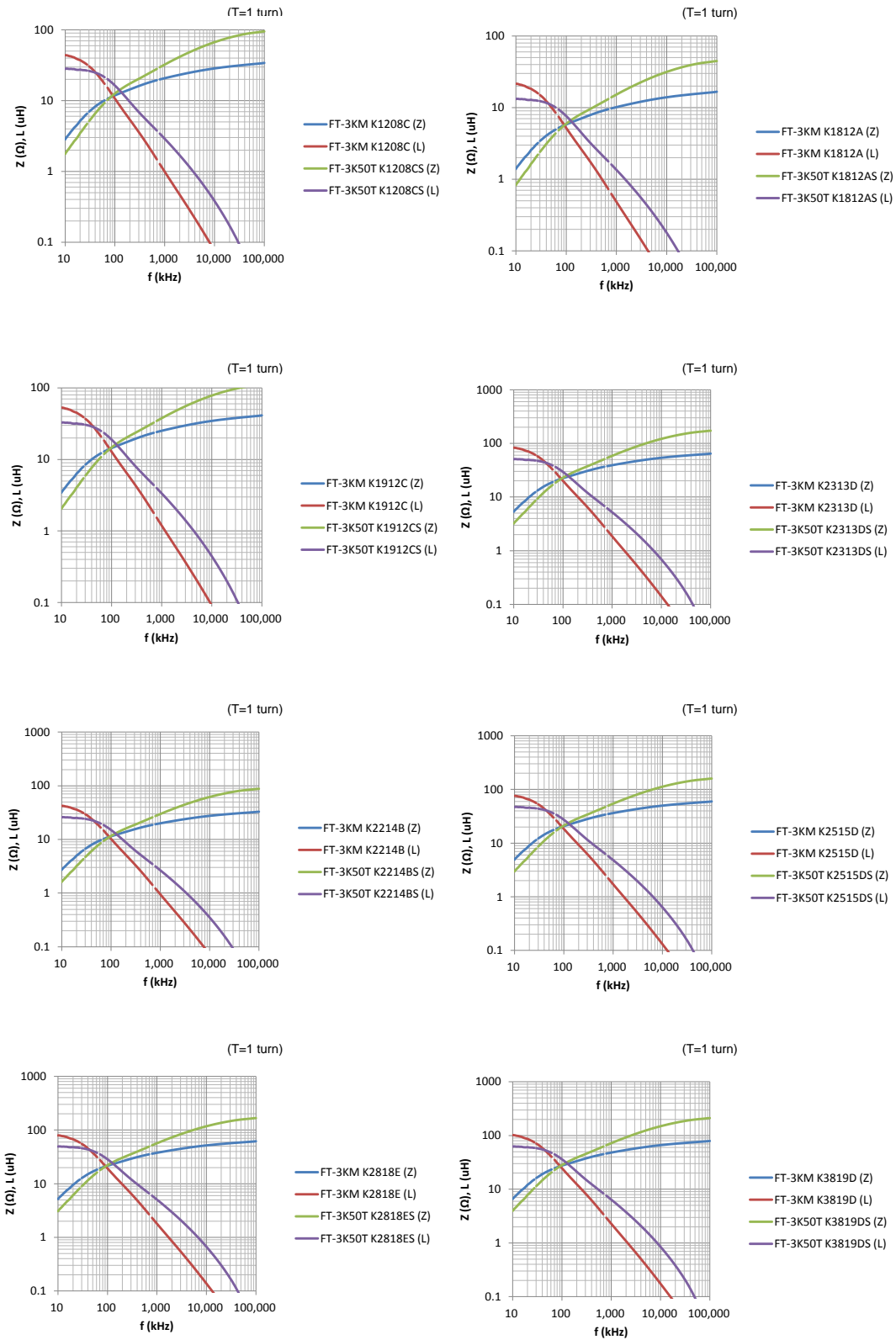
Product code	P/N	Finished dimension (mm)							Ae (mm <sup>2</sup> )	Lm (mm)	Weight (g)	AL value (μH/N <sup>2</sup> )	
		A Max.	B Max.	C Min.	D Max.	E REF.	F REF.	G REF.				10kHz +/-30%	100kHz +/-30%
F1AH1128	FT-3K50T K1208AS	13.7	7.8	5.5	11.4	2.6	-	1.8	7.7	30.3	2.9	16.6	10.3
F1AH1129	FT-3K50T K1208CS	14.2	13.2	6.3	16.2	3.0	-	1.5	13.3	31.7	4.5	26.9	16.7
F1AH1130	FT-3K50T K1812AS	20.9	8.8	9.8	13.8	3.5	-	2.5	11.3	47.1	5.8	13.22	8.2
F1AH1131	FT-3K50T K1912CS	21.8	14.0	9.5	19.0	3.5	-	2.5	24.4	48.9	13.0	32.6	20.2
F1AH1132	FT-3K50T K2313DS	25.9	15.8	11.0	21.4	4.0	-	2.8	43.9	57.3	23.0	50.8	31.5
F1AH1133	FT-3K50T K2214BS	24.9	11.3	11.5	16.9	4.0	-	2.8	22.2	56.5	13.0	25.8	16.0
F1AH1134	FT-3K50T K2515DS	27.9	16.3	12.5	21.9	3.5	-	2.8	46.3	62.8	26.0	46.9	29.1
F1AH1135	FT-3K50T K2818ES	31.1	18.7	15.3	24.7	3.5	1.5	3.0	55.5	72.3	37.0	49.0	30.4
F1AH1136	FT-3K50T K3819DS	41.1	16.2	16.3	24.2	4.0	2.0	4.0	87.9	89.5	68.0	62.5	38.7
F1AH1137	FT-3K50T K3824GS	41.3	23.7	20.9	31.7	4.0	2.0	4.0	105	97.4	87.0	67.4	41.8
F1AH1138	FT-3K50T K5328ES	57.1	19.7	24.1	29.7	5.5	2.0	5.0	127.5	114.7	155.0	71.1	44.1

- Plastic material: UL94 V-0 certified resin (130°C:PBT, 155°C:PET of heat resistance) is used for these core cases.
- No Ozone Layer Depleting Chemicals are used in these products or their manufacturing process.
- Ae: effective cross-section area, Lm: mean magnetic path length

Inductance, Impedance vs. Frequency



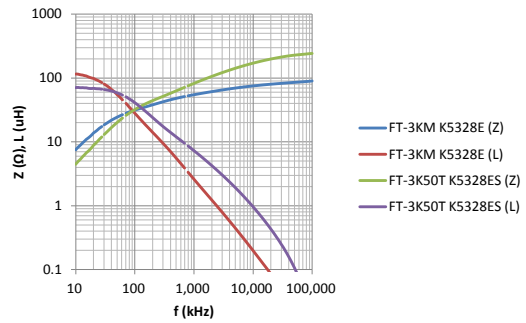
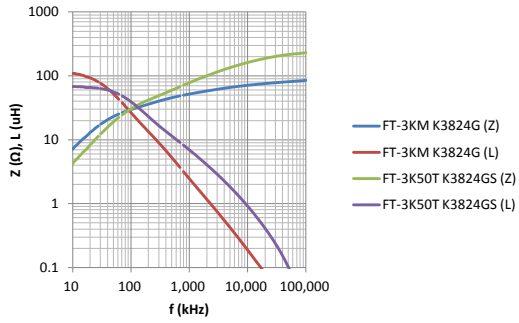
**Common Mode Choke Cores for Single-phase**  
 For signal lines, DC and AC power lines and Output filters



**Common Mode Choke Cores for Single-phase**

For signal lines, DC and AC power lines and Output filters

(T=1 turn)



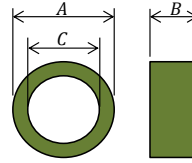
**Common Mode Choke Cores**

For signal lines, DC and AC power lines and Output filters

Preliminally

Permeability variation (10kHz)

- FT-3KS :  $\mu = 100,000$
- FT-3K70T :  $\mu = 70,000$
- FT-3K50T :  $\mu = 50,000$
- FT-3K34T :  $\mu = 34,000$
- FT-3KL :  $\mu = 27,000$
- FT-8K50D :  $\mu = 5,000$



Product code	P/N	Finished dimension (mm)			Ae (mm <sup>2</sup> )	Lm (mm)	Weight (g)	AL value (μH/N <sup>2</sup> )		SOP	Remark
		A	B	C				10kHz	100kHz		
		Max.	Max.	Min.	TYP.	TYP.	TYP.				
F1AS2042	FT-3K70T F1613Y	17.8	8.0	10.7	45.2	7.9	4	16.5	5.3	'13.Nov	
F1AS3286	FT-3K34T F1613Y	17.8	8.0	10.7	45.2	7.9	4	TBD	4.3	'13.Nov	
F1AS2858	FT-3KS F2516C	27.9	12.5	13.6	29.9	63.2	21	67	13.3	'13.Nov	
F1AS3142	FT-3KL F2516C	27.9	12.5	13.6	29.9	63.2	21	15.3	11.3	'13.Nov	
F1AS3291	FT-8K50D F2516C	27.9	12.5	13.6	29.9	63.2	21	-	3.4	'13.Nov	
F1AS0937	FT-3KS F2520C	27.6	12.8	17.4	20.0	70.7	14	31.3	8.3		
F1AS0927	FT-3K70T F2520C	27.6	12.8	17.4	20.0	70.7	14	24.8	15.8		
F1AS2741	FT-3K34T F2520C	27.6	12.8	17.4	20.0	70.7	14	9.9	6.4		
F1AS2062	FT-3KS F3020C	33.1	13.0	17.4	37.6	79.3	28	60.9	12.2		
F1AS3250	FT-3KL F3020C	33.1	13.0	17.4	37.6	79.3	28	14.2	10.5		
F1AS3292	FT-8K50D F3020C	33.1	13.0	17.4	37.6	79.3	28	-	3.1		
F1AS2200	FT-3KS F4032E	42.3	17.8	29.1	43.8	113.0	40	52.4	14.2		
F1AH1143	FT-3K70T F4032E	42.3	17.8	29.1	43.8	113.0	40	35.7	11.4		
F1AS3251	FT-3KL F4032E	42.3	17.8	29.1	43.8	113.0	40	12.0	8.9		
F1AS3294	FT-8K50D F4032E	42.3	17.8	29.1	43.8	113.0	40	-	2.4		
F1AS3165	FT-3KS F4025ES	43.1	18.5	22.5	85.5	102.0	72	109	26.4	'13.Dec	
F1AS2450	FT-3KL F4025E	43.1	18.5	22.5	85.5	102.0	72	27.5	19.6	'13.Dec	
F1AH1144	FT-3K70T F5040G	52.3	22.8	37.1	73.0	141.0	80	47.5	15.2		
F1AS3253	FT-3KL F5040G	52.3	22.8	37.1	73.0	141.0	80	14.8	11		
F1AS2738	FT-3K34T F5040G	52.3	22.8	37.1	73.0	141.0	80	TBD	12.3		
F1AS3287	FT-3K34T F8162G	83.0	22.8	59.5	115.9	218.7	185	20.4	13.2	'13.Dec	
F1AS2132	FT-3KL F8162G	83.0	22.8	59.5	115.9	218.7	185	13.2	11.8	'13.Dec	
F1AS3288	FT-3K34T F10080G	104.7	25.7	75.3	138.8	285.1	336	TBD	12.4		
F1AH0685	FT-3KL F10080G	104.7	25.7	75.3	138.8	285.1	336	14.1	10.4		
F1AS3289	FT-3KL F160130H	166.9	30.5	123.9	292.5	455.5	1,029	TBD	12.9		
F1AS3290	FT-3K34T F160130H	166.9	30.5	123.9	292.5	455.5	1,029	TBD	14.4		
F1AS3291	FT-3K50T F160130HS	166.9	30.5	123.9	292.5	455.5	1,029	TBD	30.9		
F1AS3240	FT-8K50D F160130H	166.9	30.5	123.9	292.5	455.5	1,029	4.0	4.0		
F1AS2133	FT-3K50T F194155HS	200.0	28.5	149.0	365.6	548.2	1,470	38.3	18.4	'14.Jan	
F1AS2045-1	FT-3KL F194155H	200.0	28.5	149.0	365.6	548.2	1,470	19.3	14.2	'14.Jan	

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- Ae: effective cross-section area, Lm: mean magnetic path length

## Common Mode Choke Cores

For signal lines, DC and AC power lines and Output filters

### NOTICE

1. When designing a component using this product and applying the designed components in any system, use this product only in the guaranteed range specified by Hitachi Metals, Ltd. Do not use the product beyond guaranteed values specified by Hitachi Metals, Ltd. Hitachi Metals, Ltd. will not be responsible for any damage or accident when this product is used beyond guaranteed values specified by Hitachi Metals, Ltd. Even when the product is used within the specification given by Hitachi Metals, take appropriate measures for system, such as failsafe, to avoid any accident resulting in any bodily injury and/or property damage. It is the responsibility of a user to take such measures.
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3. Take appropriate measures, such as using an overvoltage protective device to prevent high voltage surge from being applied to the product if direct lightning surge, inductive lightning surge, switching surge, etc. is likely to be applied to this product. This product may deteriorate in function when high-voltage surge is applied. It is the responsibility of the user to take such measures.
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